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1855. Orientation of Molecules in the Surface Layer of an Adsorbent and the Adsorption of Gases. Part II. B. A. Talmud and D. L. Talmud. *Acta Physicochimica*, 8, 2, pp. 171-180, 1958. In English. New methods are described of preparing "inverted" adsorbents from palmitic acid (see also Abstract 964 (1957)): (a) by automatic accumulation of unimolecular layers, (b) by skimming mixed unimolecular layers of palmitic acid and paraffin and (c) by precipitation of an aqueous solution of a palmitic acid salt by an aqueous solution of a mineral acid. The adsorptions of dry NH_3 and trimethylamine on the above adsorbents have been measured, and it was found that mixed films with medium concentrations of paraffin were exceptionally active as adsorbents. An explanation of the different activities of the various adsorbents is given. H. H. Ho.

AS 314 DETAIL ORG LITERATURE CLASSIFICATION

Photochemical reactions between iron pentacarbonyl and ammonia. F. P. Fedorov and D. L. Talmud. *Acta Physicochim. U. S. S. R.* 8, 205-10 (1954); *J. Phys. Chem. (U. S. S. R.)* 11, 352-6 (1953).—The photochemical reaction between $\text{Fe}(\text{CO})_5$ and NH_3 in the gas phase yields urea and other products and is catalytically accel-

METALLURGICAL LITERATURE CLASSIFICATION

The calculation of malonates and the crystal structure of fatty acids—preliminary communication. D. L. Tolson. *Acta Physicochim. U. R. S. S.* 8, 371-2 (1938). *Rpts.* with fatty acids fused on water and cooled indicate that a modified orientation of the mole, external into the interior in microscopic dimensions. The results also indicated that this new crystal modification is a crystal hydrate. A. A. Vernon

1ST AND 2ND SERIES										3RD AND 4TH SERIES									
PROCEDURES AND PROPERTIES MOORE																			
<p>BC</p> <p>Orientation of molecules and structure of fatty acid crystals. D. J. TAYLOR, J. Phys. Chem. Edin. 1939 11, 185-186. When palmitic acid crystallizes on a KCl surface it forms flattened crystals of β, γ form. These crystals as well as the films produced by an acid from NH₄ palmitate solutions adsorb NH₃, electrolytes, etc. more readily than charcoal. J. J. B.</p>																			
<p>ASH-514 METALLURGICAL LITERATURE CLASSIFICATION</p>																			
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1ST AND 2ND ORDERS																									
PROCESSES AND PROPERTIES INDEX																									
<p><i>BC</i></p> <p>Orientation of molecules in the surface layer of an adsorbent and gas adsorption. H. B. A. TALMUD and D. L. TALMUD (J. Phys. Chem. Russ., 1966, 11, 345-387). Paraffin acid (I) prepared by condensation of its elements adsorbs ~0.6 mol. of NH_3 per mol.; when prepared by a continuous skimming off of its surface film or by ppts. of a 2% solution of NH_3 saturated by 0.1N-HCl, it takes up 1-1.3 mol. of NH_3. Accumulated monolayers of a mixture of 23% of (I) and 67% of paraffin wax take up 20 mol. of NH_3. Almost the whole amount adsorbed is given off on evacuating. After desorption the adsorptive capacity is strongly lowered. NH_3 is adsorbed like NH_3.</p> <p style="text-align: right;">J. J. B.</p>																									
<p>ASB-SLB METALLURGICAL LITERATURE CLASSIFICATION</p>																									
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<p><i>AC</i></p> <p><i>H-1</i></p> <p>Photochemical reactions between iron pentacarbonyl and ammonia. F. P. Furmanov and D. L. Tatarsky (J. Phys. Chem. Russ., 1968, 42, 255-258). Fe(CO)₅ and NH₃ in the vapour phase in visible light give a small amount of CO(NH)₂ and other (unidentified) products. J. J. H.</p>																									

BC

Organic synthesis of the Wurtz reaction.
D. L. TALMON, J. Phys. Chem. Res., 1938, 11,
594-595. This is a study of the reaction between
Borane and the alkyl halides in the presence of
Cp₂AlCl and Cp₂AlBr. The rate of the
reaction was measured for Cp₂AlCl and Cp₂AlBr
compared with Cp₂AlCl. (Data is given). Only
those reactions that are catalyzed by the
two Al-Br and Al-Cl complexes, the relative product,
to Cp₂AlCl, is the final catalyst. J. J. B.

STY AND THE SYSTEM		PERFORMS AND PROPERTIES MODS		STD AND ATM CUBERS	
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<p>Structure of protein molecules and their catalytic properties. D. L. TAYLOR (Compt. Rend. Acad. Sci. U.S.S.R., 1928, 28, 188-187).—Treatment of yeast, <i>Saccharomyces</i>, in H_2O with eq. NH_4OH, CO_2 at 25° for 24 hr. and at room temp. for 24 hr. and decomposition of the prod. (photo-polymerization) (1) shows that the protein retains much more of (2) than would be accounted for by adsorption. The results are quantitatively accounted for by the model of the structure proposed by Winkler, and indicate a catalytic "intermediate" catalytic, the mechanism of which is discussed. A. L.</p>					
<p>ADD-61A HYDRAULIC LABORATORY CLASSIFICATION</p>					
STANDARD		STANDARD		STANDARD	
STANDARD		STANDARD		STANDARD	

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Organic catalysts. D. L. Talmud. *Vestnik Akad. Nauk S. S. R.* 1939, No. 7, 3; cf. *C. A.* 33, 3753. The work of L. in the study of linear adsorption at the boundary between 3 phases, the detn. of the relationship between ad-seption and the catalytic activities of org. adsorbents and the orientation of mols. in the surface layer of these adsorbents is discussed briefly. W. R. Ham

ABSTRACT METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND COLUMNS		PROCESSING AND PROPERTIES INDEX		3RD AND 4TH COLUMNS	
<p>Two kinds of crystals. D. L. Tolmud. <i>Uchenye Zapiski Leningrad. Gosudarst. Univ., Ser. Fiz. Nauk</i> 1960, No. 5 (No. 38), 91-111; <i>Khim. Refere. Zhur.</i> 1960, No. 3, 18.—The dependence of the adsorption of gas on the orientation of molecules in the surface layer of the adsorbent was investigated. Palmitic acid, by means of special treatments, was obtained in 2 forms: with a surface covered with COOH groups ("unrotated" adsorbent) and with a surface consisting of CH₃ groups ("rotated" adsorbent). The "rotated" palmitic acid adsorbs dry N₂ to a considerably greater extent than does the "unrotated" acid. Adsorption, not a chem. reaction, was shown to have taken place. The "rotated" adsorbent obtained by removing unrotated layers of palmitic acid from the surface of water possesses a considerably greater activity than does the same adsorbent prep. from an emulsion. This is due to the greater dispersion of films and to the better</p>		<p>"rotation" of the ends of palmitic acid in the films. The activity of adsorbents consisting of monolayers of a mixt. of palmitic acid and paraffin increases rapidly. The magnitude of adsorption is not dependent on the size of the ends of the adsorbed substance. A 2-dimensional colloid mol. of the adsorbed substance. A 2-dimensional colloid and monomol. colloid, added, of the linearly active colloid and the measurement of linear adsorption are described in detail. The Ba and Ag salts of myristic acid and Ag and Ba compds. of cetyl alc. were studied. The order of magnitude of the size of the aggregated particles of 2-dimensional colloid was calculated, and the approx. mean value of the particle size of the colloid was detd. The no. of linearly adsorbed molecules of 1,10-dimethyltetradecanedicarboxylic ester per sq. cm. of the area of the 2-dimensional colloid was calculated. Nearly all molecules of the monolayer were aggregated, and the mean size of the aggregate was of the order of magnitude of a particle consisting of 1000 molecules. Linear adsorption was also observed for cetyl alc. on the 2-dimensional colloid of Ba myristate. Because the cetyl alc. curve deviates sharply from the curve of the gaseous state it is impossible to det. the no. of the linearly adsorbed molecules.</p>		<p>W. R. Hens</p>	
<p>ABB-51A METALLURGICAL LITERATURE CLASSIFICATION</p>		<p>FROM SOURCE</p>		<p>ESTIMATED VALUE</p>	
<p>FROM SOURCE</p>		<p>FROM SOURCE</p>		<p>FROM SOURCE</p>	

TALMUD, D. L.

"The Structure of the Protein Molecule",

Obshch. Khim., 9, No. 13, 1939. (Read at a
meeting of the Division of Mathematic and
Natural Sciences, of the Academy of Sciences
USSR, 27 Sept 1938)

Report U-1614, 3 Jan 1952

1ST AND 2ND CROSS																										3RD AND 4TH CROSS																									
COMMON ELEMENTS																										COMMON SYMBOLS INDEX																									
<p>The catalytic activity of enzymes on organic adsorbents B. A. Talmud and D. L. Talmud. <i>Acta Physicochim.</i> <i>U. R. S. S.</i> 10, 481 (1957) (in English). — The relative reaction velocity consts. for the $\text{Br}_2\text{-C}_2\text{H}_5$ addn. on various surfaces were found to be 0.089 on stearic acid, 0.051 on glass, 0.027 on cetyl alc. and 0.003 on paraffin. On pal- mitic acid surfaces "inverted" so that the COOH groups pointed outward, the k values are 100 times those for noninverted acid. Pepsin is adsorbed on inverted pal- mitic acid but not on the noninverted, and retains its initial activity (digestion of casein). Urease is apparently ad- sorbed on both forms of palmitic acid but loses about 1/2 of its activity on "inverted" acid and all of its activity on the noninverted acid. On "inverted" cetylamine prepd. from aq. alkali and alcoholic cetylamine-HCl, pepsin was not adsorbed, but the soln. lost its activity. F. H. Rathmann</p>																																																			
<p>ASB-31A METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			
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Structure of the protein molecule. D. L. Leland. *Acta Physicochim.* P. R. S. S. 10, 733 (1960) (English); cf. C. A. 33, 2530. 2,5-Diketopiperazine (II) mols. were built into the structure of egg albumin (III) and pepsin (IV) mols. by allowing mixts. of solns. of the proteins with glycine ethyl ester (I) to stand at room temp. Since the mols. of I can pass through the openings of the protein while those of II cannot, those of I are held fast by the protein structure, and cannot be dissolved out. A single mol. of III holds 280 mols. of II; one of IV holds 250 of II. On denaturation of the proteins, II is liberated and ppts. out. The "heavy pepsin" obtained can be crystal. in 1-2 mm. crystals, contains up to 68% of II and is fairly sol. in water. Since the proteins occupy only 0.05 of the total vol. of the soln. while 68 (III) to 76 (IV) % of I is converted to II inside the exchd. structure, the latter must exert a very marked catalytic effect. The enclosed mols. of II create an osmotic pressure capable of reversibly rupturing a peptide bond and thus being liberated. The calcd. temp. of this reversible rupture is 30° below the denaturation temp. (70°C); actually in "heavy proteins," denaturation takes place slowly just above room temp. I discusses the possible bearing of these results on protein synthesis in the cell. P. H. Rathmann

ADDITIONAL LITERATURE CLASSIFICATION

11A

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Models of protein molecules. 1) L. Talmud. *Compt. rend. acad. sci. U. R. S. S.* 25, 484 (1930) (in English); cf. C. A. 33, 7829. Various models suggested by others are discussed briefly. Their fundamental common weakness lies in overlooking the side chains in the amino acid residues. The mutual action of the side chains and the identical optical configurations of the amino acids would, in the process of condensation, lead to the formation of polypeptide chains in the shape of closed rings and with all the side chains lying on the same side of the plane of the ring. The rings can undergo further condensation through lactam-lactime forms to build up polyhedra which combine to form globular protein mols. Denaturation is connected with an easy racemization, since the formation of amino acid residues of the opposite configuration is not compatible with the existence of the polypeptide ring. H. L. Mason

AND SEA DETAILER LITERATURE CLASSIFICATION

TALMUD, D. L.

"Protein Structure (Stroueniye Belka), published by AN SSSR, 1940. .

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
PROCESSES AND PROPERTIES INDEX																			
<p>CA</p> <p>2</p> <p>Intracellular absorption of organic substances by protein solutions. D. L. Talmud. <i>Acta Physiologica U. R. S. S. 14, 800-8(1961)</i>. In nonconcentrating denaturation, the absorption of hydrocarbons produces an opalescence indicating a conformational change. This is interpreted as due to transition of side chains from the internal to the external surface of the protein globules. P. H. R.</p>																			
ASACSLA METALLURGICAL LITERATURE CLASSIFICATION																			
MATERIALS INDEX										COMMON VARIABLES INDEX									
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1ST AND 2ND NAMES		PRECEDENCE AND PUBLICATION MOSES		100 AND 4TH GENERAL	
<p><i>ca.</i></p> <p style="text-align: right;">2</p> <p style="text-align: center;">Mechanical properties of uniaxial films obtained by means of two-dimensional polyesterification and condensation. S. R. Brooker, D. L. Johnson and M. F. Yudin. <i>J. Phys. Chem.</i> (U. S. S. R.) 14, 801-8(1940); <i>Aris Syntechim.</i> U. R. S. S. 14, 71-84(1941).—Reactions in a plane are studied by means of the mech. properties of the two-dimensional films formed. Three types of polymers formed by two-dimensional reactions exist depending on the presence in the reacting mole. of bi- or poly-functional groups. Exptl. data are given for the reactions propolis-formalin, cadaverin-papain, tetramethylenedioxystearaldehyde.</p> <p style="text-align: right;">F. H. Rothmann</p>					
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION					
REASON STUDYING		REASON MONITOR		1ST NAME LISTED	
SARNOO *A		SEEROO HIP ONV DOG		CELLATIONS	
M. W. A. N. O. S.		M. W. A. N. O. S.		M. W. A. N. O. S.	

TALMUD, D. L.

"Chemical Morphology of Albumin Macromolecules and Some of Their Biological Functions," final report presented at the General Assemblies of AS 11-19 February 1944.

VAN 4/5-44

CA

11F

PROCESSED AND REPRODUCED BY THE

New developments and discoveries in the chemistry of immunity. D. L. Tolmud. *Uspekhi Khim.* 13, 35-47 (1944).—Review and a discussion, chiefly of Pauling's theory of the formation and structure of antibodies (cf. Pauling and Campbell, *C.A.* 36, 3844^h). 24 references.

AND SIA METALLURGICAL LITERATURE CLASSIFICATION

COMMON ELEMENTS																										PROCESSES AND PROPERTIES INDEX																									
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC AD AE AF AG AH AI AJ AK AL AM AN AO AP AQ AR AS AT AU AV AW AX AY AZ BA BB BC BD BE BF BG BH BI BJ BK BL BM BN BO BP BQ BR BS BT BU BV BW BX BY BZ CA CB CC CD CE CF CG CH CI CJ CK CL CM CN CO CP CQ CR CS CT CU CV CW CX CY CZ DA DB DC DE DF DG DH DI DJ DK DL DM DN DO DP DQ DR DS DT DU DV DW DX DY DZ EA EB EC ED EE EF EG EH EI EJ EK EL EM EN EO EP EQ ER ES ET EU EV EW EX EY EZ FA FB FC FD FE FF FG FH FI FJ FK FL FM FN FO FP FQ FR FS FT FU FV FW FX FY FZ GA GB GC GD GE GF GG GH GI GJ GK GL GM GN GO GP GQ GR GS GT GU GV GW GX GY GZ HA HB HC HD HE HF HG HH HI HJ HK HL HM HN HO HP HQ HR HS HT HU HV HW HX HY HZ IA IB IC ID IE IF IG IH II IJ IK IL IM IN IO IP IQ IR IS IT IU IV IW IX IY IZ JA JB JC JD JE JF JG JH JI JJ JK JL JM JN JO JP JQ JR JS JT JU JV JW JX JY JZ KA KB KC KD KE KF KG KH KI KJ KL KM KN KO KP KQ KR KS KT KU KV KW KX KY KZ LA LB LC LD LE LF LG LH LI LJ LK LL LM LN LO LP LQ LR LS LT LU LV LW LX LY LZ MA MB MC MD ME MF MG MH MI MJ MK ML MN MO MP MQ MR MS MT MU MV MW MX MY MZ NA NB NC ND NE NF NG NH NI NJ NK NL NM NO NP NQ NR NS NT NU NV NW NX NY NZ OA OB OC OD OE OF OG OH OI OJ OK OL OM ON OO OP OQ OR OS OT OU OV OW OX OY OZ PA PB PC PD PE PF PG PH PI PJ PK PL PM PN PO PP PQ PR PS PT PU PV PW PX PY PZ QA QB QC QD QE QF QG QH QI QJ QK QL QM QN QO QP QQ QR QS QT QU QV QW QX QY QZ RA RB RC RD RE RF RG RH RI RJ RK RL RM RN RO RP RQ RR RS RT RU RV RW RX RY RZ SA SB SC SD SE SF SG SH SI SJ SK SL SM SN SO SP SQ SR SS ST SU SV SW SX SY SZ TA TB TC TD TE TF TG TH TI TJ TK TL TM TN TO TP TQ TR TS TT TU TV TW TX TY TZ UA UB UC UD UE UF UG UH UI UJ UK UL UM UN UO UP UQ UR US UT UU UV UW UX UY UZ VA VB VC VD VE VF VG VH VI VJ VK VL VM VN VO VP VQ VR VS VT VU VW VX VY VZ WA WB WC WD WE WF WG WH WI WJ WK WL WM WN WO WP WQ WR WS WT WU WV WW WX WY WZ XA XB XC XD XE XF XG XH XI XJ XK XL XM XN XO XP XQ XR XS XT XU XV XW XX XY XZ YA YB YC YD YE YF YG YH YI YJ YK YL YM YN YO YP YQ YR YS YT YU YV YW YX YY YZ ZA ZB ZC ZD ZE ZF ZG ZH ZI ZJ ZK ZL ZM ZN ZO ZP ZQ ZR ZS ZT ZU ZV ZW ZX ZY ZZ																																																			
<p>CF The nature of globular proteins. I. S. E. Hester and D. J. Talmann. <i>Doklady Akad. Nauk S.S.S.R.</i> 43, 326-330; <i>Compt. rend. acad. sci. U.R.S.S.</i> 43, 310-14(1944) (in English).—The observed monodispersity of globular protein (GP) in water is explained on the basis that the energy relations involved in formation of GP particles lead to a sharp max. in the probability distribution curve of mol. wt. The structure of GP particles in water is pictured as a coiled spiral so arranged that the surface of the particles consists of hydrophilic peptide bonds, while the nucleus is formed by van der Waals forces drawing together the hydrophobic side chains of the amino acids linked by the peptide bonds. Simple calcs. indicate that cohesive forces between the hydrophobic side chains involve energies of about 500,000 cal. per g. mol. of protein, e.g., hemoglobin. The size of the GP particles is sharply limited by the fact that large surface energy requirements must be met if GP particles are to be formed in which the hydrophilic envelope fails completely to cover the hydrophobic nucleus. It follows that an important factor detg. the size of the particles of a given GP is the mean vol. of the hydrophobic side chains of the component amino acids. Calcs. show that this picture is in harmony (1) with exptl. detns. of the mol. wt. (degree of polymerization) of GP and (2) with ultracentrifuge data relating to the probability of deviation from the av. degree of polymerization. II. A few consequences of the new hypothesis. <i>Ibid.</i> <i>Doklady Akad. Nauk S.S.S.R.</i> 43, 367-9; <i>Compt. rend. acad. sci. U.R.S.S.</i> 43, 349-50(1944) (in English).—The polypeptide chains of proteins are not coiled into globules in aq. dispersion (1) if the no. of hydrophobic groups is very small (e.g. fibrillar proteins such as silk fibroin) or (2) if the no. of strongly hydrophilic side chains is very large (e.g., protamines, gelatin). The degree of polymerization ($n = 23$) of synthetic polyalanine (cf. <i>C.A.</i> 37, 86¹) which resembles globular protein (GP) agrees well as to order of magnitude with theoretical predictions. Soap micelles which contain a double hydrophobic layer surrounded by polar groups are structurally analogous to GP particles. Uncoiling the polypeptide chain of GP involves a large energy increase and also a large increase in entropy with a sharp max. in free energy for a partially uncoiled condition. This accounts for the very large values of the temp. coeffs. of the denaturation reactions of various GP ompps. Regularity in x-ray patterns of GP is attributed to orderly packing of the coiled polypeptide chains, since orderly packing of the nucleus of GP particles seems unlikely owing to diversity among the hydrophobic side chains of various amino acids. The coiled chain theory of GP particle structure can be applied to explaining the structure and action of antibodies.</p>																																																			
<p style="text-align: right;">J. W. Perry</p>																																																			
<p>ASB-55A METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			
<p>3304 3305 3306 3307 3308 3309 3310 3311 3312 3313 3314 3315 3316 3317 3318 3319 3320 3321 3322 3323 3324 3325 3326 3327 3328 3329 3330 3331 3332 3333 3334 3335 3336 3337 3338 3339 3340 3341 3342 3343 3344 3345 3346 3347 3348 3349 3350 3351 3352 3353 3354 3355 3356 3357 3358 3359 3360 3361 3362 3363 3364 3365 3366 3367 3368 3369 3370 3371 3372 3373 3374 3375 3376 3377 3378 3379 3380 3381 3382 3383 3384 3385 3386 3387 3388 3389 3390 3391 3392 3393 3394 3395 3396 3397 3398 3399 3400 3401 3402 3403 3404 3405 3406 3407 3408 3409 3410 3411 3412 3413 3414 3415 3416 3417 3418 3419 3420 3421 3422 3423 3424 3425 3426 3427 3428 3429 3430 3431 3432 3433 3434 3435 3436 3437 3438 3439 3440 3441 3442 3443 3444 3445 3446 3447 3448 3449 3450 3451 3452 3453 3454 3455 3456 3457 3458 3459 3460 3461 3462 3463 3464 3465 3466 3467 3468 3469 3470 3471 3472 3473 3474 3475 3476 3477 3478 3479 3480 3481 3482 3483 3484 3485 3486 3487 3488 3489 3490 3491 3492 3493 3494 3495 3496 3497 3498 3499 3500 3501 3502 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The structure of the protein molecule. D. I. Lohm
 Vestnik Akad. Nauk S.S.S.R. 17, 28-40 (1947). ~~Chem. Rev.~~
 (Russian Zone Ed.) 1948, 1, 591-2; cf. C.A. 43, 3054.
 T's theory of the globular structure of the macromol. of
 protein is discussed. From a study of the statistical dis-
 tribution of amino acid residues with various side chains in
 the polypeptide chain of the protein mol. it is shown that
 about half of all these residues carry hydrophobic side
 chains (hydrocarbon groups) while the remainder carry
 side chains of hydrophilic, polar groups. The actual shape
 of the mol. is detd. by the medium surrounding it. In a
 polar medium the hydrophobic side chains "act on" each
 other and form the nucleus of the globular mol. The
 hydrophilic side chains, which tend to react with the me-
 dium, then form the surface of the mol. Statistically
 about 130 amino acid residues are necessary for such a
 configuration. This value is in agreement with exptl.
 data. Changes in the character of the protein with changes
 in the environment are explained as due to the "uncover-
 ing" of certain groups previously in the interior of the mol.
 The form of the macromol. is more important than its
 content. Preps. of polyphthalylglutamate provided the
 simplest examples of water-sol., globular substances
 analogous to proteins for the exptl. testing of the theory.
 Typical protein phenomena, such as the dependence of
 enzymic attack on the form of the protein mol., are ex-
 plained on the basis of the model offered of the macromol.
 There is a continuous gradation in structure between the
 limiting cases of the ideal globular and the ideal fibrillar
 structures.
 M. G. Misner

AFANAS'YEV, P. V., TALMUD, B. A., and TALMUD, D. I.

Mem., Inst. Biochemistry im. A. N. Bakh, Acad. Sci., -1946-.

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PASYNSKIY, A. G., TALMUD, D. L.; and TALMUD, D. L.

"Nature of Globular Albumen. V. Synthesis of Albumin-Like Substances
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Structural transformations of the protein molecule.
D. L. Talmon, *Sovetskhanie po Belku, Akad. Nauk S.S.S.R. (5-ya Konferents. Vysokomolekulyarnym Soedineniyam) 1948, 18-20.* - A review with 10 references is given of the influence of hydrophilic and hydrophobic side chains in amino acids in detg. the globular or fibrillar form of proteins and polyamides. H. M. Leicester

ASB-364 METALLURGICAL LITERATURE CLASSIFICATION

1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594 2595 2596 2597 2598 2599 2600 2601 2602 2603 2604 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644 2645 2646 2647 2648 2649 2650 2651 2652 2653 2654 2655 2656 2657 2658 2659 2660 2661 2662 2663 2664 2665 2666 2667 2668 2669 2670 2671 2672 2673 2674 2675 2676 2677 2678 2679 2680 2681 2682 2683 2684 2685 2686 2687 2688 2689 2690 2691 2692 2693 2694 2695 2696 2697 2698 2699 2700 2701 2702 2703 2704 2705 2706 2707 2708 2709 2710 2711 2712 2713 2714 2715 2716 2717 2718 2719 2720 2721 2722 2723 2724 2725 2726 2727 2728 2729 2730 2731 2732 2733 2

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Morphological changes in globulins. Uspekhi Biol. Khim. 1, 70-90 '50.
(CA 47 no.14:7007 '53) (MLBA 5:8)

AFANAS'YEV, P.V.; TALMUD, D.L.

Possible ways of biosynthesis of protein. Izv. Akad. nauk SSSR. Ser.
biol. no.6:115-120 Nov-Dec 51. (CML 21:5)

1. Presented by Academician A.I. Oparin. 2. Institute of Biochemistry
imeni A.N. Bakh, Academy of Sciences USSR.

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Possible routes of protein biosynthesis. P. P. Akman'ev and D. L. Talmud. *Izv. Akad. Nauk S.S.S.R., Ser. Biol.* 1988; No. 1; 118-20; cf. *C.A.* 42, 3792f. —Review with numerous references. It is suggested that an incipient globulin mol. surrounded by proper medium can grow by accretion of amino acids or peptides until a certain size is reached, when the globule will divide and can continue such growth independently. G. M. Kosolapov

PA 247T25

USSR/Biology - Proteins

21 Aug 52

"Replaceability of Amino Acids in the Protein Molecule in Vitro," A. G. Pasyanskiy, Corr Mem Acad Sci USSR, D. L. Talmud, Inst Biochem im A. N. Bakht Acad Sci USSR

DAN SSSR, Vol 85, No 6, pp 1361-1364

Using trypsin and applying high pressure, as described in S. Ye. Bresler's papers, succeeded in replacing tyrosine with phenylalanine in pure serumglobulin of horses and in human serumalbumin. Found that the exchange of amino acids does not

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take place in the absence of the enzyme. When optically active phenylalanine was used, the results differed depending on the activity of the optical enantiomorph: under the conditions of the expt, 0.7 mg/ml of l-phenylalanine could be made to enter into the compn of the protein as compared with 0.3 mg/ml in the case of d-phenylalanine.

247T25

TALMUD, D. L.

U S S R

Reaction of globular proteins with esters of aspartic acid. P. V. Afanas'ev, B. A. Talmud, and D. L. Talmud. Doklady Akad. Nauk S.S.S.R. 90. 610-22 (1973). *U.S.S.R. 47, 1109b.*—Treatment of egg albumin in phosphate buffer at pH 7.5 with $H_2NCH_2CO_2Et$ in 1:2 molar ratio and incubation at 37° led to gradual decline of pH to 4.5, with reduction in the content of acidic groups of the protein. Dialysis and paper chromatography of the product showed the liberation of 21% of aspartic acid (based on total content of it in the protein). The dialyzed product was hydrolyzed, yielding 4.26% glycine, in comparison with 3.13% in the initial albumin, which corresponds to the amt. of displaced aspartic acid. Probably the ester is hydrolyzed, with transesterification being the concurrent reaction in which glycine replaces aspartic acid in the protein. G. M. Kosolapoff.

TALMUD. Mrs. Davidovna; D'YAKOV, A.M., otvetstvennyy red.; LESNYKH, I.S.,
red.izd-va; NEGRIMOVSKAYA, R.A., tekhn.red.

[Present-day Ceylon] Sovremenniy TSeilon. Moskva, Izd-vo vostochnoi
lit-ry, 1958. 82 p. (MIRA 11:6)
(Ceylon)

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TALMUD, I-L.

Obtaining aluminum oxide, caustic alkali and cement
from nephelites. F. N. Stekov, I. L. Talmud and V. A.
Misyakov. *J. Chem. Ind. (Moscow)* 13, 329-34 (1956).
History and methods are discussed. H. M. Leicester -

ASSOCIATED METALLURGICAL LITERATURE CLASSIFICATION

TALMUD, I L
SUBJECT: USSR/Aluminum Production. 25-4-6/34
AUTHOR: Talmud, I.L., Director of the Volkhov Aluminum Plant
TITLE: Aluminum from Nepheline (Aluminiy iz Nefelina)
PERIODICAL: Nauka i Zhizn', April 1957, # 4, pp 14-16

ABSTRACT: The Soviet Union has limited reserves of bauxite, but unlimited supplies of nepheline which is mainly found on the Kola peninsula, in the Krasnoyarsk district, and in Armenia. While bauxite yields 50 to 60 % of aluminum oxide, nepheline contains merely 30 % of it. The new technology of processing nepheline was first taken up by the Volkhov Aluminum Plant - it was the first of its kind in the world. The most difficult problem was to destroy the nepheline molecules and to extract from them aluminum oxide. For this purpose limestone was chosen as the most suitable and cheapest material. After facing immense difficulties in the beginning, the extraction of aluminum oxide proved profitable as a few by-products could be derived simultaneously. With each ton of aluminum oxide, extracted nine tons of cement, and 0.9 tons of sodium carbonate and potassium carbonate could be produced; thus the net cost of extracting aluminum oxide from

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TITLE:

Aluminum from Nepheline (Aluminiy iz Nefelina) 25-4-6/34
nepheline is about the same as from bauxite thanks to the by-products which can be used in building up the USSR. The Volkhov plant has already produced hundreds of thousands of tons of aluminum oxide, sodium carbonate and potassium carbonate and over one million tons cement. Not long ago the plant has developed a system of extracting one more component - the rare metal of gallium which is also contained in nepheline. The USSR thus is able to produce unlimited quantities of aluminum. Power for the Aluminum Plant is being supplied by the Volkhov GES. This article contains three diagrams.

ASSOCIATION: Volkhov Aluminum Plant.

PRESENTED BY:

SUBMITTED:

AVAILABLE: At the Library of Congress.

Card 2/2

136-5-2/14

AUTHOR: Talmud, I.L.

TITLE: The Volkhov Aluminium Works - Pioneer of the Aluminium Industry. (Volkhovskiy Alyuminievyy zavod - pervenets alyuminievoy promyshlennosti).

PERIODICAL: "Tsvetnye Metally" (Non-ferrous Metals) 1957, No.5, pp. 9 - 13 (U.S.S.R.)

ABSTRACT: The Volkhov. Works was completed in 1932. . It produced the first commercial aluminium in the U.S.S.R. and has played a leading part in the development of the industry since then. The activities of the works are reviewed in this article. Experience at this works served in the design of later works. It has played a leading part in the adoption of aluminium production on the basis of nephelites as a raw material, but the start of this was delayed by the war until 1952. Experience at the works has conclusively shown that the cost of alumina from nephelites is not greater than from bauxites, the capital costs being less for the complex treatment of nephelites than required for the construction of separate alumina, soda-products and cement plants. The article mentions by name some of the works personnel concerned in the continuous improvement in practice which has occurred and mention is also made of research results at the works. The latter includes the proof of the

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SOV/137-59-3-5496

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 3, p 79 (USSR)

AUTHOR: Talmud, I. L.

TITLE: Nepheline -- a New Type of Complex Raw Material (Nefelin -- novyy vid kompleksnogo syr'ya)

• PERIODICAL: Byul. tsvetn. metallurgii, 1957, Nr 8, pp 30-34

ABSTRACT: A description is given of the development of the complex processing of nephelines at the Volkhovskiy aluminum plant. An up-to-date flow-sheet of the production of the plant is adduced. The ultimate solution of the problem of diminishing the slope of the sintering and calcinating furnaces from 4.9 to 2.2° and increasing the rpm to 2 was recently attained at the plant. A highly productive thickener-filter was constructed, and the advantages of agitation leaching prior to diffusion leaching were proved. The following technical-economic indices are adduced: Yield of alumina from nepheline is 80 - 85%; output of sintering furnaces is 16.tons/hour, of cement furnaces 17.7 tons/hour; consumption of alkalies is 970 kg/ton Al_2O_3 ; consumption of nepheline 4 ton/ton Al_2O_3 ; cost of alumina in the third quarter of 1956 was 881 rubles per ton.

V. B.

Card 1/1

TALMUD, I.L.

**The Volkhov Aluminum Plant, first in the aluminum industry. TSvet.
met. 30 no.5:9-13 My '57. (MIRA 10:6)**

**1. Volkhovskiy aluminiiyevyy zavod.
(Volkhov Valley--Aluminum industry)**

TALMUD, I.L.

How one should not evaluate the economics of using certain
types of aluminous raw materials in industries of the U.S.S.R.
Izv.vys.uchev.sov.; tsvet.met. 2 no.4:158 '59.
(MIRA 13:1)

1. Direktor Volkhovskogo alyuminiyevogo zavoda.
(Nepheline) (Aluminum industry--Costs)

TALMUD, I.L.

Complete processing of raw nepheline. Khim.prom. no.4:226-232 Ap
'61. (MIRA 14:4)

(Nepheline)

TALMUD, I. V.

"Khimicheskaya pererabotka nefelinovogo syr'ya."

report submitted for 35th Intl Cong, Industrial Chemistry, Warsaw, 15-19
Sep 64.

POZIN, M.Ye.; KOPYLEV, B.A.; TALMUD, M.M.

Solubility in the system $MgO - P_2O_5 - H_2O$ in its metastable state.
Zhur.prikl.khim. 38 no.6:1267-1273 Je '65.

(MIRA 18:10)

1. Leningradskiy tekhnologicheskii institut imeni Lensoвета.

POZIN, M.Ye.; KOPYLEV, B.A.; TALMUD, M.M.

Solubility and crystallization rate of dicalcium phosphate
in the system $MgO - CaO - P_2O_5 - H_2O$. Zhur.prikl.khim. 38
no.9:1904-1909 S '65. (MIRA 18:11)

1. Leningradskiy tekhnologicheskij institut imeni Lensoвета.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50																									
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC AD AE AF AG AH AI AJ AK AL AM AN AO AP AQ AR AS AT AU AV AW AX AY AZ BA BB BC BD BE BF BG BH BI BJ BK BL BM BN BO BP BQ BR BS BT BU BV BW BX BY BZ CA CB CC CD CE CF CG CH CI CJ CK CL CM CN CO CP CQ CR CS CT CU CV CW CX CY CZ DA DB DC DD DE DF DG DH DI DJ DK DL DM DN DO DP DQ DR DS DT DU DV DW DX DY DZ EA EB EC ED EE EF EG EH EI EJ EK EL EM EN EO EP EQ ER ES ET EU EV EW EX EY EZ FA FB FC FD FE FF FG FH FI FJ FK FL FM FN FO FP FQ FR FS FT FU FV FW FX FY FZ GA GB GC GD GE GF GH GI GJ GK GL GM GN GO GP GQ GR GS GT GU GV GW GX GY GZ HA HB HC HD HE HF HG HH HI HJ HK HL HM HN HO HP HQ HS HT HU HV HW HX HY HZ IA IB IC ID IE IF IG IH II IJ IK IL IM IN IO IP IQ IR IS IT IU IV IW IX IY IZ JA JB JC JD JE JF JG JH JI JJ JK JL JM JN JO JP JQ JR JS JT JU JV JW JX JY JZ KA KB KC KD KE KF KG KH KI KJ KL KM KN KO KP KQ KR KS KT KU KV KW KX KY KZ LA LB LC LD LE LF LG LH LI LJ LK LM LN LO LP LQ LR LS LT LU LV LW LX LY LZ MA MB MC MD ME MF MG MH MI MJ MK ML MN MO MP MQ MR MS MT MU MV MW MX MY MZ NA NB NC ND NE NF NG NH NI NJ NK NL NO NP NQ NR NS NT NU NV NW NX NY NZ OA OB OC OD OE OF OG OH OI OJ OK OL OM ON OP OQ OR OS OT OU OV OW OX OY OZ PA PB PC PD PE PF PG PH PI PJ PK PL PM PN PO PP PQ PR PS PT PU PV PW PX PY PZ QA QB QC QD QE QF QG QH QI QJ QK QL QM QN QO QP QQ QR QS QT QU QV QW QX QY QZ RA RB RC RD RE RF RG RH RI RJ RK RL RM RN RO RP RQ RR RS RT RU RV RW RX RY RZ SA SB SC SD SE SF SG SH SI SJ SK SL SM SN SO SP SQ SR SS ST SU SV SW SX SY SZ TA TB TC TD TE TF TG TH TI TJ TK TL TM TN TO TP TQ TR TS TT TU TV TW TX TY TZ UA UB UC UD UE UF UG UH UI UJ UK UL UM UN UO UP UQ UR US UT UU UV UW UX UY UZ VA VB VC VD VE VF VG VH VI VJ VK VL VM VN VO VP VQ VR VS VT VU VW VX VY VZ WA WB WC WD WE WF WG WH WI WJ WK WL WM WN WO WP WQ WR WS WT WU WV WW WX WY WZ XA XB XC XD XE XF XG XH XI XJ XK XL XM XN XO XP XQ XR XS XT XU XV XW XX XY XZ YA YB YC YD YE YF YG YH YI YJ YK YL YM YN YO YP YQ YR YS YT YU YV YW YX YY YZ ZA ZB ZC ZD ZE ZF ZG ZH ZI ZJ ZK ZL ZM ZN ZO ZP ZQ ZR ZS ZT ZU ZV ZW ZX ZY ZZ																									
1ST AND 2ND EDDIES																									
PROCESSES AND PROPERTIES INDEX																									
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<p>The influence of the nature of solvent upon the swelling and the solution of sodium butadiene polymers. I. I. Zhukov, S. L. Talmud and V. A. Zilberman. <i>Sintet. Kautchuk</i> 1935, No. 6, 4-15.—Na butadiene polymers (I) were purified by pptg. twice with EtOH from C₆H₆ soln., filtering and drying <i>in vacuo</i>. The plasticity of I was 0.26 (Karrer). The swelling no. (the ratio of the vol. of swelled I to the original vol.) and the time required for dissolving I in different solvents were detd. in a modified Lottermouzer app. at 20°. The solvents tested included C₆H₆, PhMe, xylene, cumene, pseudocumene, tetralin, decalin, cyclohexane, cyclohexene, pentane, hexane, petr. ether, Galosha, anisole, piperylene, CCl₄, CHCl₃, C₂H₅Cl, C₄H₉Cl, C₃H₇Cl, C₂H₅Br, MeOH, EtOH, iso-AmOH, ethylene chlorohydrin, eugenol, PhNH₂, PhNHMe, PhNMe₂, Et₂O, EtOAc, AmOAc, turpentine, pinene, CS₂, PhNO, piperidine, PhINSH, and o-HOC₂H₄CHO. The solvents with double bonds dissolved I quickly; those with high dielec. consts. did not dissolve I. In MeOH, PhNH₂, Me₂CO and PhCH₂OH I did not even swell. A. Pestoff</p>																									
ASAC 55A OFFICIAL LITERATURE CLASSIFICATION																									
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the treatment of synthetic rubber. The elements of techniques and methods of measurement. 1. I. Zhukov and S. L. Talmud, *J. Rubber Ind.* (U. S. S. R.) 18, 1145-13(1035).--A technique for measuring the adhesion of raw rubber to different surfaces and the cohesion (autohesion) of 2 rubber surfaces to themselves is described. A. Pestoff

ASB-SLA DETALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND GRIDS																										3RD AND 4TH GRIDS																									
PROCESSES AND PROPERTIES INDEX																																																			
<p>Rubber substitutes. S. L. Talund. Russ. 40,007, April 30, 1936. With rubber waste are incorporated high-boiling unsatd. compds. or their polymers, such as products obtained in the distn. of cracked, pyrogenized petroleum, shale or coal; S, Na polysulfide or SCl_2 is added and the mixt. heated to about 100°.</p>																																																			
<p>ASB-55A METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			

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The introduction of antioxidant into rubber. S. I. Talmon and I. A. Levitin. *Sintet. Kautschuk* 1936, No. 5, 6-8.—Agerite was dissolved in the fraction above 150° from the fractional distn. of higher alcs. in nfg. synthetic rubber (100 g. of alcs. and 50 g. of Agerite), or in anthracene oil. The soln. was milled into the rubber, and better dispersion of Agerite was obtained. Photomicrographs are given. Three references. A. Pentoff

ASB.SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS										PROCESSES AND PROPERTIES INDEX										3RD AND 4TH ORDERS									
COMMON ELEMENTS										COMMON VARIABLES INDEX																			
<p><i>Ca</i></p> <p>The application of the new formula of H. Staudinger for the calculation of molecular weights of sodium-butadiene polymers. S. Talmud and V. Sheremetev. <i>Caoutchouc and Rubber</i> (U.S.S.R.) 1957, No. 4, 6-10; cf. <i>C. A. A. 20, 4217</i>.—The mol. wts. of the part of Na-butadiene polymer fractions sol. in C_6H_6 were calcd. from viscosity measurements, with the formula of Staudinger: $\log(\eta_{sp}/c) = K_1 \cdot c + \log(\eta_{sp}/c)_{\infty}$. The results agree with those found for polystyrenes. The K_1 increased with increase in mol. wt. The const. for the increase of mol. wt. was calcd. $K_{mw} = 3 \times 10^{-4}$. Seven references. A. Pestoff</p>																													
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Ca

The use of higher alcohols in sodium butadiene rubber mixtures. S. L. Talmud. *Caoutchouc and Rubber* (U. S. S. R.) 1937, No. 4, 37-40.—Introduction of 3-7% of the distn. residue of butanol (hexyl, octyl and other alks.), obtained in the manuf. of synthetic rubber by the method of Lebedev, into synthetic-rubber mixes. increased the dispersion of ingredients and improved the qualities of the vulcanizates. A. Pestoff

ASS-5LA METALLURGICAL LITERATURE CLASSIFICATION

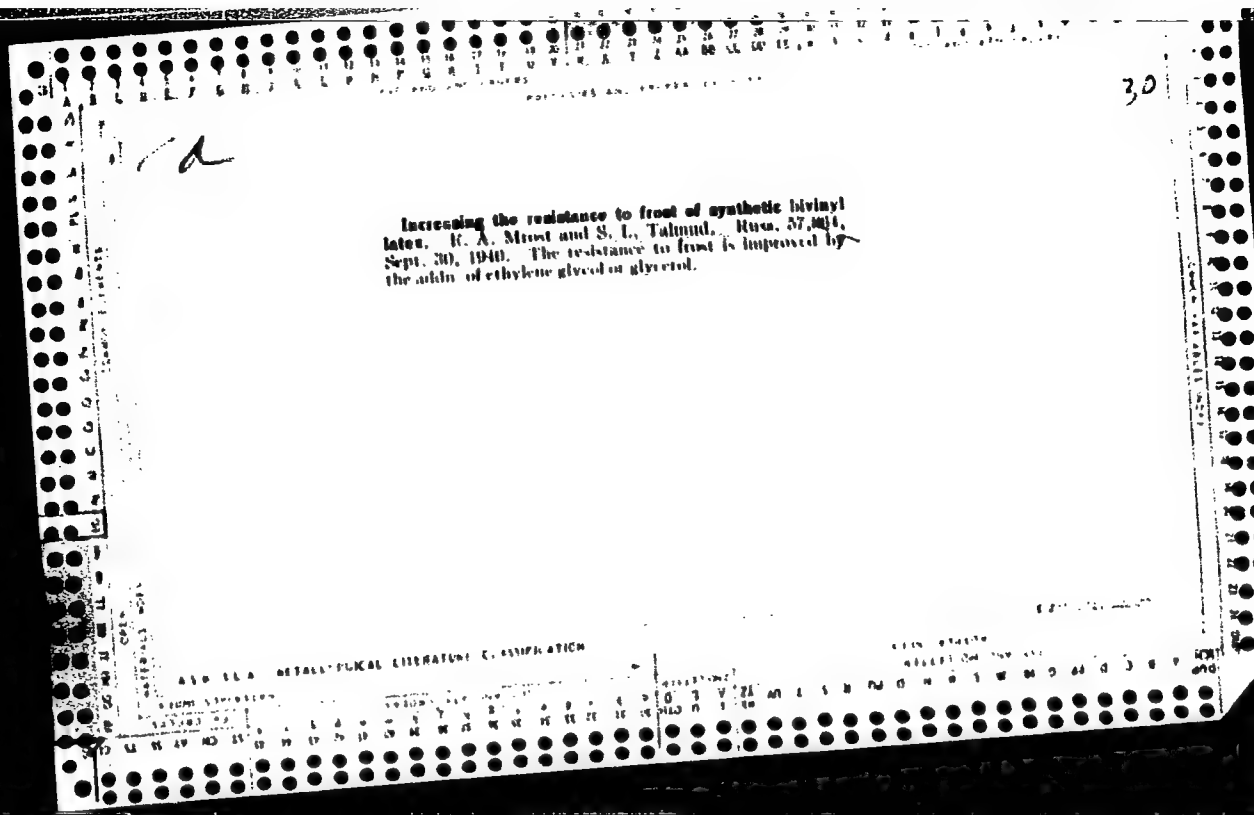
6-2

COMMON ELEMENTS		COMMON VARIABILITY INDEX	
<p><i>ca</i></p> <p>The effect of softeners on the properties of sodium-bisvinyl rubber. S. L. Talumid, T. I. Yuzhenko and Yu. N. Vasileva. <i>Cautchouc and Rubber</i> (U. S. S. R.) 1938, No. 8 p. 34-45.—Softeners from coal tar (intermediate oil, absorbent oil, anthracene oil, etc.); from by-products of petroleum pyrolysis (light oil, solvent, cooler tar and green oil) and from petroleum-cracking processes (oxidized press-distillate, unoxidized press-distillate, cracking kerosene, polymer and Winkler-Koch residues) and scrubber residues were tested in the base mixt.: rubber 100, S 1.5, accelerator 1.75, gas black 60 parts by wt., softener 0.25; cured in open steam at 3 atm. The vulcanizates were tested for tensile strength and elongation before and after aging in a Geer oven at 70° for 120 hrs. All results are plotted. The petroleum products prepd. by pyrolysis improved aging; the other products were ineffective.</p> <p>Bernard Kilberg</p>		<p>30</p>	
<p>ADD-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>		<p>RIGHT COVERED REJECT ONE QWV 251</p>	
<p>100000 HWP QWV QW</p>		<p>REJECT ONE QWV 251</p>	
<p>100000 HWP QWV QW</p>		<p>REJECT ONE QWV 251</p>	

Influence of softening and dispersing agents on the properties of sodium-divinyl rubbers H. S. L. Lahmid and G. I. Yurchenko. *Caoutchouc & Rubber* (U. S. S. R.) No. 7, 15 21 (1959); cf. C. A. 33, 18485. —An investigation was made of the effects of high-boiling esters, terpenes and by-products obtained from the chem. treatment of wood on the properties of sodium-divinyl rubber. The rubbers were compounded with lampblack, S, accelerator and softeners (5-25 parts per 100 parts of rubber), vulcanized and aged in a thermostat at 70° for 5 days. The compds. had a smaller effect on the swelling and soln. of the rubbers than did hydrocarbons. By increasing the percentages of the softeners (except heptyl acetate), the plasticity of the rubbers increased. Large percentages of triacetin gave high plasticities despite the insoly. of the rubber in it. The best phys.-mech. properties of the rubbers were obtained by addn. of di-Bu phthalate, di-Et phthalate and heptyl acetate (5-15 parts) and terpenyl acetate and triacetin (5 parts). All other softeners gave phys.-mech. properties below those of the control samples, which were similar to the test samples except that they contained stearic acid and Rubens instead of softeners. All the compds. accelerated deterioration except phthalic acid esters in all proportions and ethylphenyl acetate, benzyl acetate and terpenyl acetate (25 parts). Conclusion: Small amts. of polar compds. such as high-boiling esters may be used to improve the properties of rubber.

H. Z. Kamich

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117 AND 2ND ORDERS																									
PROCESSES AND PROPERTIES INDEX																									
3RD AND 4TH ORDERS																									
<div style="float: right;">10</div> <div style="float: left; font-size: 2em; margin-top: 20px;">ca</div> <p style="text-align: center;">Lowering the melting point of aldid-α-naphthylamine. S. I. Tolmud, I. A. Levitski and B. M. Volovik. Russ. 57,184, May 31, 1940. Stearic acid, castor oil or oleic acid is added to aldid-α-naphthylamine to lower its m. p.</p>																									
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Aqueous dispersions of antioxidants for rubber. Opyt-nyi Zavod Litera B (inventors, V. Ya. Aklakushkin, S. I. Talmud and V. A. Fedotov). Russ. 59,283, Nov. 10, 1959. Antioxidants are dissolved in rubber softeners and these soles are dispersed in water with the aid of emulsifiers.

ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION

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Mechanism of polymerization of butadiene in water emulsions. I. S. L. Talmud, R. M. Gal'ding, and V. Ya. Aldakushkin. *J. Gen. Chem. (U.S.S.R.)* 17, 717-30 (in Russian) (in English, 730-40) (1947).—Butadiene was polymerized by the soda process in the absence of O and also in the presence of O, which was introduced through definite components of the system. Five series of expts. were carried out at 65° in an air thermostat for 48 hrs. (1) All the products were prep'd. and introduced into the reaction vessel in the absence of O; the yields of polymers were 2.6-4.5%. (2) All the products except the emulsifier (oleic acid) were prep'd. in the absence of air; oleic acid was then freed of all dissolved O before being used. The yields of polymer were 6.8-12.1%. (3) The aq. phase was prep'd. in the presence of air; butadiene phase was prep'd. in the absence of O but was introduced into the reaction vessel in the presence of air. The yields of polymer were 7.3-17.4%, the increase being proportional to the time of exposure of the butadiene phase to the air. (4) The aq. phase was prep'd. and introduced in the absence of air but the butadiene phase was prep'd. and introduced in the presence of air. The yields of polymer were 70-72.8%. (5) Both phases were prep'd. and introduced in the absence of air; however, the butadiene used was at one time stored in the air and later freed of dissolved O. The yields of polymer were 25.8-53.7%. (6) Prepn. was the same as in series (2), but the butadiene phase was introduced in the presence of air. The yields of polymer were 50-60%. (7) Both phases were prep'd. and introduced in the presence of air; the yields were 41.6-43.2%. The results indicate that O is the initiator of the polymerization and that the O in the butadiene exerts the greatest influence on the polymerization. Butadiene stored in air showed the formation of polymer comp'ds. which gave a peroxide test; these catalyzed the polymerization. The addn. of org. peroxide comp'ds. made it possible to reproduce the polymerization process and to regulate it; the latex produced by this method was not different from that produced by the soda process.

B. Z. Kamich

ASS-3LA METALLURGICAL LITERATURE CLASSIFICATION

TALMUD, S. L.

USSR/Chemical Technology - Chemical Products and Their Application. Wood Chemistry
Products. Cellulose and Its Manufacture. Paper, I-23

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 63381

Author: Dymarchuk, N. P., Ivanyushkina, A. M., Popova, L. A., Talmud, S. L.

Institution: None

Title: Concerning the Problem of Resin Trouble in the Manufacture of Paper
and Methods for Its Control

Original
Periodical: Zh. prikl. khimii, 1956, 29, No 4, 610-617

Abstract: Elimination of carbonate hardness of water does not decrease the
amount of resin which passes from the fiber into the liquid phase.
Resin trouble at paper mills can be eliminated (in part or fully)
by adding acid or alumina into the hollanders, to coagulate the resin.
On using $Al_2(SO_4)_3$ as coagulant the resin emulsified in the pulp and
water of paper manufacture is not completely coagulated or requires
very large amounts of coagulant. Most advantageous conditions of
resin coagulation in the pulp and circulating water of paper manu-
facture are provided by combined use of $Al_2(SO_4)_3$ and $Ca(OH)_2$.

Card 1/1

TALMUD, S L.

Resin difficulties in the cellulose and paper industry.
IX. Resin difficulties in the paper industry and means of
overcoming them N P Dymarchuk, A. M. Ivanyush-
kina, L. A. Popova, and S. L. Talmud. *J Appl Chem.*
U.S.S.R. 29, 609-74, 1966. English translation. See C.A.
50, 17445d. B. M. R.

TALMUD, S.L.; TURZHETSKAYA, A.N.; KULESHOVA, A.A.

Fractional composition of short cellulose fibers. Koll. zhur. 19
no.1:118-120 Ja-F '57. (MLBA 10:4)

1. Leningradskiy tekhnologicheskii institut im. V.M. Molotova,
Kafedra fizicheskoy i kolloidnoy khimii.
(Cellulose) (Fibers)

TALMUD, S. L.

✓ Resin difficulties in the industry of collages and paper. I.
The location of "unwanted" resin. V. P. Derzhavina and
S. L. Talmud. Colloid J. U.S.S.R. 15, 31-4 (1953) (Engl.
translation). See C.A. 47, 511c. H. L. H.

TALMUD, S. L.

USSR

✓ Purification of cellulose by fractionation of the fibers.
S. L. Talmud, A. M. Ivanovskina, L. A. Popova, and
E. P. Vassilova (V. M. Molotov Technol. Inst., Lenin-
grad). Doklady Akad. Nauk. S.S.S.R. 92, 397-8 (1953).
The relation between the fiber length and the properties of
paper and cardboard made therefrom is of great theoretical
and practical interest. The fractionation of the fibers ac-
cording to their length was studied, and the physicochem.
and chem. properties for sulfate cellulose, before and after
washing, were detd. It is shown that removal of fines
yields celluloses with increased α -cellulose and decreased
larry material; flex resistance, etc., are also improved (cf.
Koskinen, C.A. 33, 7102).

Elisabeth Barabash

TALMUD, S. L.

AID P - 915

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 6/22

Authors : Deravyagina, V. P. and Talmud, S. L.

Title : Stability of emulsified resin in the system resin-water and resin-sulfite liquor-water

Periodical : Zhur. prikl. khim. 27, no. 5, 501-505, 1954

Abstract : Lowering the temperature causes a sharp decrease in the stability of resin emulsions. Precipitation of the resin is particularly pronounced at 100-50°C. Sulfite liquor has a stabilizing effect on the emulsified resin. Three tables, 1 diagram, 4 references (Russian: 1932-1953).

Institution : Chair of Physical and Colloidal Chemistry of the Leningrad Institute of Technology im. V. M. Molotov

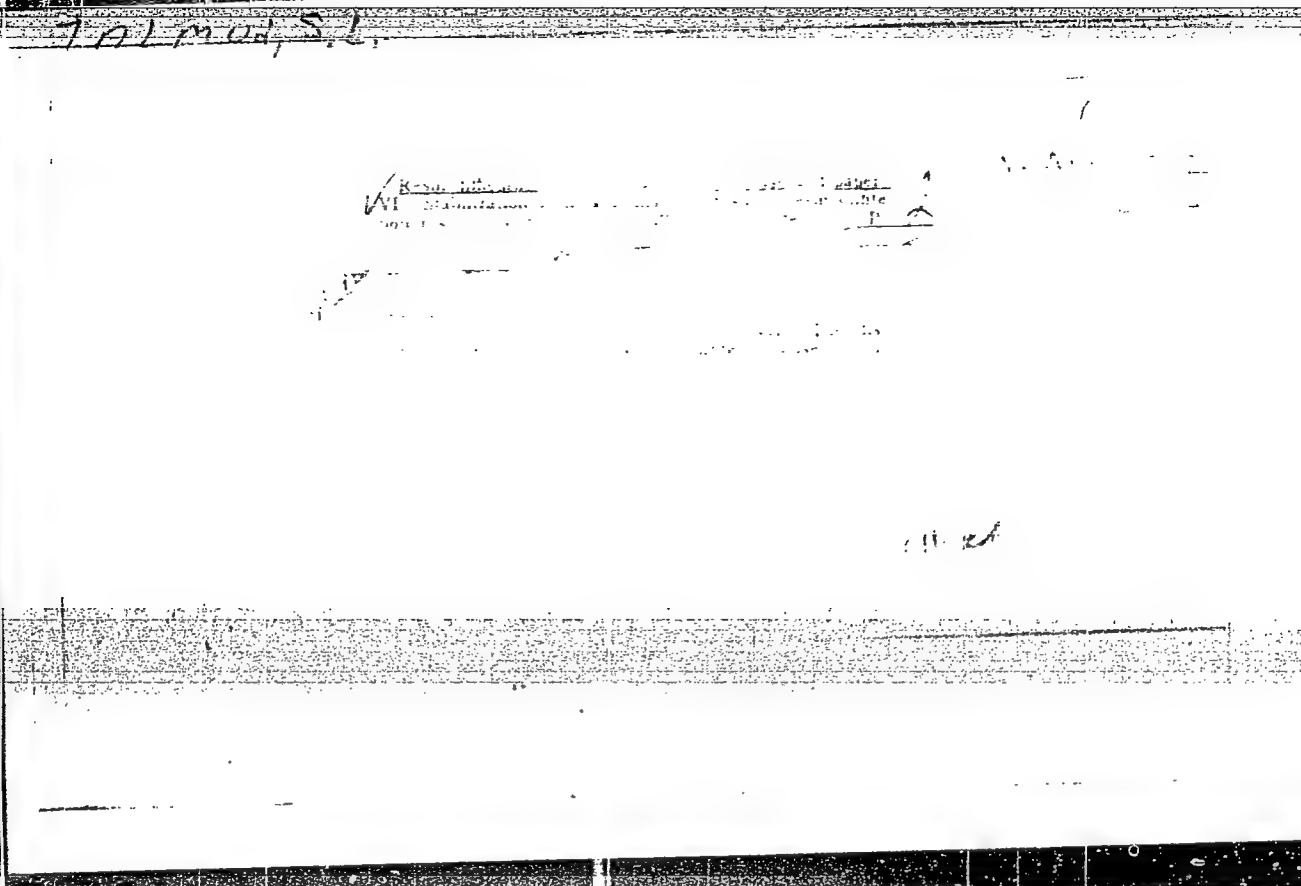
Submitted : My 6, 1953

TALMUD, S. I.

Resin difficulties in the industry of cellulose and paper.
 111. Coagulation of emulsified tar in the systems: tar-water, tar-sulfite liquor-water, and tar-sulfite liquor-fiber-water. V. P. Derevyagina and S. I. Talmud (V. M. Molotov Technol. Inst., Leningrad). *Zhur. Priklad. Khim.* 27, 901-8 (1964); cf. *C.A.* 48, 11057b. The coagulation of tar in sulfite spent liquor systems by means of addn. of electrolytes is ineffective at the higher levels of sulfite liquor in the system. In the system tar-H₂O the coagulating ability of electrolytes is related directly to the valence of the cations; anions are ineffective. Al and Fe readily coagulate the system; Ca and Mg require higher concns. of the electrolytes, whereas Na and K do not cause complete coagulation. Hence, Al₂(SO₄)₃ was used in the subsequent expts. In the coagulation of tar-sulfite liquor-H₂O system the stability of the system with respect to coagulation is relatively greater and more coagulant is required even when only 0.1% sulfite liquor is present; at higher levels of liquor (0.25-1.0%) even concd. solns. of the coagulating agent are ineffective. If cellulosic fibers are also present, coagulation is possible only at the expense of very large amts. of coagulant. Hence, thorough washing of cellulose to remove the sulfite spent liquor is very important. Tars present after bleaching form aq. emulsions with much lower solid content than do tars from the initial stages; the former tars also yield emulsions with lower pH (2.85-3.23), in comparison with pH 4.28-4.2 obtaining prior to bleaching. Coagulation with combined action of Al₂(SO₄)₃-Ca(OH)₂ is usually more effective than is individual treatment. G. M. K.

→ their Physics & Colloid Chem.

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TAL MOD, SL

✓ Resin difficulties in the industry of cellulose and paper
The effect of sodium orthophosphate on the stability
of the system containing Al₂(SO₄)₃ and water

Technol. Inst. Leningrad, 222-1-1967. The effect of the addition
of 0.1% of Na₂PO₄ on the stability of the system containing Al₂(SO₄)₃ and water

had been added (iii). The amount of Al₂(SO₄)₃ required for coagulation. All
systems contained 0.11% resin. The addition of 0.1% Na₂PO₄
I, II and III reduced the required Al₂(SO₄)₃ from 0.157

DYMARCHUK, N.P.; IVANYUSHKINA, A.M.; POPOVA, L.A.; TALMUD, S.L.

Troubles caused by resin in the manufacture of paper and methods
for their control. Zhur. prikl. khim. 29 no.4:610-617 Ap '56. (MIRA 9:11)

1. Kafedra fizicheskoy i kolloidnoy khimii Leningradskogo tekhnologicheskogo instituta imeni V.M. Molotova.
(Paper industry) (Gums and resins)

YAKIMOVA, V. I.; TALMUD, S.L.; MISHCHENKO, K. P.

"On the Interaction of Cellulose with Liquids."

report presented at the Section on Colloid Chemistry, VIII Mendeleyev Conference of
General and Applied Chemistry, Moscow, 16-23 March 1959.
(Koll. Zhur. v. 21, No. 4, pp. 509-511)

MISHCHENKO, K.P.; TALMUD, S.L.; YAKIMOVA, V.I.

Reaction of cellulose with liquids. Vysokom.sped. 1 no.5:
662-669 My '59. (MIRA 12:10)

1. Leningradskiy tekhnologicheskij institut tsellyulozno-bumazhnoy
promyshlennosti.
(Cellulose) (Thermochemistry)

SOV/69-21-3-16/25

5(4)

AUTHORS: Mishchenko, K.P., Talmud, S.L. and Yakimova, V.I.
TITLE: On the Value of the Specific Surface of Cellulose
PERIODICAL: Kolloidnyy zhurnal, 1959, Vol XXI, Nr 3, pp 330-335 (USSR)
ABSTRACT: The present investigation is concerned with the selection of reliable methods permitting the determination of the value of the specific surface of cellulose in the dry and the swollen state. The authors also tried to determine the most probable value of the specific surface of standard cotton cellulose and technical wood celluloses obtained by different methods. For the determination of the specific surface of cellulose in the dry state, the standard method of nitrogen vapor adsorption at its boiling point (-195.7°) was used. For the determination of the specific surface of cellulose in the swollen state the method of ion exchange, as proposed by V.I. Yur'yev, appeared as most reliable to the authors. The experiments confirmed the suitability of this preliminary selection.

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SOV/69-21-3-16/25

On the Value of the Specific Surface of Cellulose .

The specific surface of standard cotton cellulose was found to be $16-19 \text{ m}^2/\text{g}$. The results obtained with the two methods are in accordance. It was further stated that swelling in water does not have an effect on the value of the specific surface of the plant fiber. Wood celluloses obtained with various methods are sharply distinguished from natural fiber, as far as their internal structure is concerned. The specific surface of wood celluloses was found to be $2 - 2.5 \text{ m}^2/\text{g}$ of celluloses in the swollen state - $100 - 200 \text{ m}^2/\text{g}$. The authors mention the Soviet scientists A.V. Kiselev, T. Bikkerstaff, V.I. Yur'yev (see above) and N.I. Nikitin. There are 3 graphs, 3 tables and 19 references, 10 of which are English, 8 Soviet and 1 German.

ASSOCIATION: Leningradskiy tekhnologicheskii institut tsellyulozno-
Card 2/3 bumazhnoy promyshlennosti, Kafedra fizicheskoy i

On the Value of the Specific Surface of Cellulose SOV/69-21-3-16/25

kolloidnoy khimii (Leningrad Technological Institute
of the Cellulose and Paper Industry, Chair of Physical
and Colloid Chemistry)

SUBMITTED: 3 October 1957

Card 3/3

AUTHORS: Talmud, S.L., Turzhetskaya, A.N. SOV/80-32-2-43/56

TITLE: A Comparative Study of the Effect of Trisodiumphosphate, Sodium Pyrophosphate and Sodium Hexametaphosphate on the Stability of the Systems Resin-Water and Resin-Sulfite Lye-Water (Sravnitel'noye izucheniye vliyaniya trinatriyfosfata, pirofosfata natriya i geksametafosfata natriya na stabil'nost' sistem smola-voda i smola-sul'fitnyy shchelok-voda)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol XXXII, Nr 2, pp 447-449 (USSR)

ABSTRACT: The three phosphates mentioned in the title are sensitizers for the system resin-sulfite lye-water. Trisodiumphosphate is the most efficient in this respect. The results of experiments are given in a table. They may be applied to emulsions and suspensions used in the paper production. There is 1 table and 7 references, 5 of which are Soviet, 1 American, and 1 Swedish.

Card 1/2

SOV/80-32-2-43/56

A Comparative Study of the Effect of Trisodiumphosphate, Sodium Pyrophosphate and Sodium Hexametaphosphate on the Stability of the Systems Resin-Water and Resin-Sulfite Lye-Water

ASSOCIATION: Kafedra fizicheskoy i kolloidnoy khimii Leningradskogo tekhnologicheskogo instituta (Chair of Physical and Colloidal Chemistry of the Leningrad Technological Institute)

SUBMITTED: December 3, 1957

Card 2/2

TALMUD, S.L.; TURZHETSKAYA, A.N.; VOLKOV, V.A.; IVASHKIN, G.P.; FEDOTOV, Yu.M.

Colloidal solubility of the resin from sulfite pulp and rosin. Koll.
zhur. 22 no.4:477-481 J1-Ag '60. (MIRA 13:9)

1. Leningradskiy tekhnologicheskoy institut, Kafedra fizicheskoy i
kolloidnoy khimii.
(Gums and resins)

AKIM, L.Ye.; BAMDAS, T.G.; MEL'CHAKOVA, N.A.; TALHOD, S.L.

On the preparation of sulfite viscose. Zhur. prikl. khim. 33
no.8:1867-1874 Ag '60. (MIRA 13:9)

1. Leningradskiy tekhnologicheskoy institut tsellyulozno-bumazhnoy
promyshlennosti.

(Viscose)

TALMUD, S.L.; ZEL'DINA, A.Ye.; GURNEVICH, R.I.

Preparation of sulfite viscose. Zhur. prikl. khim. 33 no.9:2112-
2118 S '60. (MIRA 13:10)

1. Leningradskiy tekhnologicheskii institut tsellyulozno-bumash-
noy promyshlennosti. (Viscose)

TALMUD, S.L.; TURZHETSKAYA, A.N.; VOLKOV, V.A.; FEDOTOV, Yu.M.

Colloidal solubility of resin from sulfite pulp and resin. Zhur.
prikl.khim. 34 no.10:2306-2315 0 '61. (MIRA 14:11)

1. Leningradskiy tekhnologicheskiy institut tsellyulozno-bumazhnoy
promyshlennosti.

(Gums and resins) (Solubility)

DYMARCHUK, N.P., kand. khim. nauk; KUDRYAVTSEVA, I.V., inzh.;
MISHCHENKO, K.P., doktor khim. nauk; TALMUD, S.L., kand. khim. nauk

Thermodynamics of woodpulp interaction with water and aqueous
solutions of electrolytes. Report No.5: Comparing the "active"
surfaces and heat of interaction with water of unbleached pulp
and viscose cellulose obtained therefrom before and after
fractionization. Trudy LTITSBP no.10:57-64 '62. (MIRA 16:8)

(Woodpulp) (Heat of wetting) (Electrolytes)

TALMUD, S.L.; ZEL'DINA, A.Ye.

Production of sulfide rayon pulp. Trudy LTITSBP no.12:95-115 '64.

Determining the amount of resin dissolved in the cooking liquors
of sulfite pulp production. Ibid.:126-129

(MIRA 18:8)

TALMUD, S.L.: VOLKOV, V.A.

Colloidal solubility of resins from sulfite woodpulp and colophony,
and its role in woodpulp and paper production. Trudy LTITSBP
no.12:116-125 '64. (MIRA 18:8)

TAIMUR, S.I.; KOVALENKO, A.M.

Colloidal solubility in water of colophony and resins obtained
from sulfite pulp. Trudy LTITSBP no.12:135-137 '64.

Interferometric method for determining the colloidal solubility
in water of colophony and resins obtained from sulfite pulp.
Ibid.:138-143 (MIRA 18:8)

DYMARCHUK, N.P.; KORNILOVA, N.V.; TALMUD, S.I.

Molecular weight of cellulose acetates and their fractions. Trudy
LTITSBP no.12:144-149 '64. (MIRA 18:8)

TALMUD, S.L.; BAMDAS, T.G.; ZEL'DINA, A.Ye.

Obtaining sulfite viscose cellulose. Report No.1: Reactivity of
cold-refined cellulose for viscose formation. Trudy LTITSEP
no.13:16-20 '64. (MIRA 18:2)

AKIM, L.Ye.; GEYSBERG, S.M.; TALMUD, S.L.; Prinimali uchastie: YEL'NITSKAYA, Z.P., mladshiy nauchnyy sotrudnik; ZEL'DINA, A.Ye., mladshiy nauchnyy sotrudnik; MEL'CHAKOVA, N.A., mladshiy nauchnyy sotrudnik; BLINOV, Ye.P., starshiy laborant; BOGDANOVSKAYA, M.K., starshiy laborant

Obtaining viscose cellulose for the production of staple rayon with complete elimination of the stage of hot alkaline refining of the woodpulp. Trudy ITITSBP no.13:8-15 '64.

(MIRA 18:2)

TAIMUD, S.L.; NOVOSELOV, N.P.

Obtaining sulfite viscose cellulose. Report No.2: Studying the
effect of the drying temperature on the reactivity of cold-
refined viscose cellulose. Trudy LTITSBP no.13:21-25 '64.
(MIRA 18:2)

TALMUD, S.L.; GERMER, E.I.

Obtaining sulfite viscose cellulose. Report No.3: Development of optimal conditions for the cold refining of cellulose under laboratory conditions. Trudy LTITSBP no.13:26-32 '64. (MIRA 18:2)

DYMARCHUK, N.P.; PETROVSKAYA, I.D.; TALMUD, S.L.

Molecular weight of acetyl cellulose and its fraction. Izv.vys.
ucheb.zav.; khim. i khim.tekh. 7 no.2:292-296 '64.

(MIRA 18:4)

1. Leningradskiy tekhnologicheskoy institut tsellyuloznobumazhnoy
promyshlennosti, kafedra fizicheskoy i kolloidnoy khimii.

TAL'NIKOV, V. V.

Rozenberg, L.I. and Tal'nikov, V.V. "Experiment on control of hospitalized patients with contagious forms of syphilis in the Gor'kovskiy oblast," Nauch. zapiski Gor'k in-ta dermatologii i venerologii i Kafedry kozhno-verenich. bolezney SSMI im. Kirova, Issue 12, 1948, p. 180-88

SO: U-3264, 10 April 1953, (Letopis 'Zhurnal 'nykh Statey, No. 3, 1949

DMITRIYEVA, A.I.; SHUSHKIN, A.A.; MIRONOV, K.M.; DERBENEV, S.I.;
GRANICHNOVA, Z.P.; OKUN', M.M.; MIKHAYLOVA, N.N.; ANDREYEV,
V.V.; MAKEYEV, V.S.; OSIPOVA, V.M.; L'VOVYY, V.S.;
SMIRNOV, G.N., nauchnyy sotr.; ZAIKIN, I.N.; TAL'NISHNIKH,
G.N.; MORKOVIN, V.A.; GALAGAN, V.A.; RAZUVAYEV, A.A., red.;
SOKOLOVA, V.Ye., red.; TRISHINA, L.A., tekhn. red.

[Manual on the industrial primary processing of flax]
Spravochnik po zavodskoi pervichnoi obrabotke l'na. Izd.2.,
perer. i dop. Moskva, Rostekhizdat, 1962. 755 p.

(MIRA 15:12)

1. Tsentral'nyy nauchno-issledovatel'skiy institut lubyanykh volokon (for Dmitriyeva, Shushkin, Mironov, Derbenev, Granichnova, Okun', Mikhaylova, Andreyev, Makeyev, Osipova).
2. Vsesoyuznyy nauchno-issledovatel'skiy institut okhrany truda (for Smirnov).
3. Upravleniye zagotovki i pervichnoy obrabotki l'na Kalininskogo sovnarkhoza (for Zaikin, Tal'nishnikh, Morkovin, Galagan, L'vovyy).

(Flax) (Flax processing machinery)

TAL'NOV, Yu.A.

Fluorescent attachment for the type B unit for the determination of
the location of tumors of the brain with radioactive iodine. Med.rad.
4 no.11:84-85 N '59. (MIRA 13:2)

1. Iz kafedry rentgenologii s meditsinskoy radiologiyey (zaveduyushchiy -
dotsent M.M. Mikhaylov) Voronezhskogo meditsinskogo instituta.
(BRAIN neoplasms)
(IODINE radioactive)

24.2500

65726
SOV/139-59-2-25/30

AUTHORS: Kucherenko, Ye.T., Dem'yanenko, V.P. and Tal'nova, G.N.

TITLE: The Effect of Ion Bombardment on the Electron Emission of an Oxide-Coated Cathode

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1959, Nr 2, pp 160-168 (USSR)

ABSTRACT: An experimental study has been made of the effect of ion bombardment on the emission of a well activated oxide-coated cathode. The effect of the ion energy (in the range 100 to 600 ev) and the magnitude of the ion current (in the range 1 to 15×10^{-6} amp/cm²) on the rate of decrease of the emission of an oxide-coated cathode working at a reduced temperature has been studied. The experiments were carried out using the tube shown in Fig 1. The construction of this instrument is similar to that described by Ptushinskiy (Ref 12). In Fig 1, 1 is the anode, 3 are tungsten cathodes and 2 are reflectors. The ion source 1-3 was filled with a chemically pure argon at a pressure of about 2×10^{-4} mm Hg. The ionization was carried out by the method described by Ardenne and Heil in Ref 13. The cathode under investigation 10 was placed immediately behind the ion

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The Effect of Ion Bombardment on the Electron Emission of an Oxide-Coated Cathode

extracting system 4-6. The electrode 8 was used to measure the change in the emission of the cathode. Special precautions were taken to remove other gases etc before the tube was filled with argon. It was found that for argon ions of up to 600 ev and ion current densities up to 15 μ amp/cm² noticeable fall in the emission is observed only at reduced cathode temperatures. At reduced temperature, the reduction in the emission depends strongly on the temperature, the ion energy and the ion current density. The following empirical relationships have been found

$$\alpha = \alpha_0 e^{\frac{Q}{KT}}$$

$$\text{and } I = I_0 e^{-a(V_p - b)I_p t} \quad (T = 990^\circ K)$$

$$\text{where } \alpha = \left[\frac{d(\lg I/I_0)}{dt} \right]_{t=0} ; I \text{ is the current at a}$$

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given time t ; I_0 is the initial current ($t=0$); V_p is the

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SOV/139-59-2-25/30

The Effect of Ion Bombardment on the Electron Emission of an
Oxide-Coated Cathode

ion energy; I_p is the ion current and a, b, Q are constants.
The corresponding graphs are shown in Fig 6, 8 and 9.
There are 9 figures and 18 references, 6 of which are
Soviet, 7 English, 1 German and 4 Japanese.

ASSOCIATION: Kiyevskiy gosuniversitet imeni T.G. Shevchenko
(Kiyev State University imeni T.G. Shevchenko)

SUBMITTED: July 1, 1958

Card 3/3

83269

S/109/60/005/009/016/026
E140/E455

26.2253
AUTHORS: Kucherenko, Ye.T., Dem'yanenko, V.P. and
Tal'nova, G.N.
TITLE: Effects of Ion Bombardment on the Electron Emission
from Oxide and Boride Cathodes
PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.9,
pp.1493-1499

TEXT: In continuation of work published in Ref.1, factory-produced plane cathodes 3 mm dia were tested. The electrical circuit indicated the cathode emissivity at very low temperatures both oscillographically and by a pointer instrument. The cathode was activized either by the usual method or by ion bombardment, as described in Ref.1. In studying the effects of ion bombardment on well-activized cathodes operated at very low temperature, it was found that the equilibrium emission is dependent on the ion beam parameters. Hence, the interaction of the ion with the cathode surface can hardly be attributed to simple disruption of the active layer; other elementary phenomena must be assumed to be also present. The authors consider the most probable processes to be dissociation of the oxide at the surface, connected with oxygen

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S/109/60/005/009/016/026
E140/E455

Effects of Ion Bombardment on the Electron Emission from Oxide and Boride Cathodes

evolution. This is partially confirmed by an exceedingly great increase of work function although the emissivity only decreases by a factor of 8. Further, if reactivation is neglected the logarithmic decrease of emission with time should be linear. However, in Fig.2 it is seen that this is not the case, although the initial rate of decrease agrees with the theoretical, neglecting reactivation. The studies of LaB₆ cathodes contradicted Lafferty's results (Ref.3) in that the effects of mercury ion bombardment were found to be reversible. Analysis of the present experimental material shows that LaB₆ cathodes at working temperatures are insensitive to bombardment by neon, argon and mercury ions in a range of energy up to 10 kV for argon, 3 V for neon and 2 kV for mercury, with beam currents 100 A/cm², 40 A/cm² and 25 A/cm² respectively. Changes in emissivity caused by ion bombardment at low temperature were reversible and it is assumed that they are connected with chemical changes in the surface state of the cathode. Acknowledgments are made to

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S/109/60/005/009/016/026
E140/E455

Effects of Ion Bombardment on the Electron Emission from Oxide and
Boride Cathodes

N.D.Morgulis and student V.G.Avramenko for their assistance.
There are 8 figures and 7 references; 6 Soviet and 1 English.

SUBMITTED: November 13, 1959

4

Card 3/3

BONDARCHUK, V.G., akademik, otv. red.; KOROLEVA, M.A., glav. red.;
 KOCHUBEY, A.D., red.; RADUL, M.M., kand. geogr. nauk, red.;
 BILYK, G.I., kand. biol. nauk, red.; GEYDEMAN, T.S., kand.
 biol. nauk, red.; ZAMORIY, P.K., doktor geol.-min. nauk, prof.,
 red.; KUGUKALO, I.A., kand. ekon. nauk, starshiy nauchnyy stor.,
 red.; MARINICH, A.M., dotsent, red.; MUKOMEL', I.F., kand. geogr.
 nauk, starshiy nauchnyy sotr., red.; PRIKHOT'KO, G.F., kand.
 geogr. nauk, red.; ROMANENKO, I.N., akademik, red.; TAL'NOVA,
 N.N., red.; BYUSHGENS, L.M., kand. geogr. nauk, retsenzent;
 DIDKOVSKIY, I.Ya., kand. geol.-miner. nauk, retsenzent;
 KEL'NER, Yu.G., kand. geogr. nauk, retsenzent; NADEZHIN, P.F.,
 retsenzent; NIKISHOV, M.I., doktor tekhn. nauk, retsenzent;
 PIDOPLICHKO, I.G., retsenzent; KURDINA, G.P., red.-kartograf;
 RACHINSKAYA, Z.P., red.-kartograf; SLEPISOVA, L.M., redaktor-
 kartograf.

[Atlas of the Ukrainian S.S.R. and the Moldavian S.S.R.] Atlas
 Ukrainskoi SSR i Moldavskoi SSR. Moskva, 1962. vi p. 90 p.
 of col.maps. (MIRA 15:5)

(Continued on next card)

BONDARCHUK, V.G.— (continued) Card 2.

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye geodezii i kartografii.
2. Akademiya nauk USSR, direktor Instituta geologicheskikh nauk Akademii nauk USSR (for Bondarchuk).
3. Nachal'-nik kartosostavitel'skogo tsekha fabрики No.1 (for Koroleva).
4. Zamestitel' predsedatelya Gosudarstvennogo planovogo komiteta Soveta Ministrov USSR (for Kochubey).
5. Direktor Instituta ekonomiki Akademii nauk Moldavskoy SSR (for Radul).
6. Zamestitel' direktora po nauchnoy rabote Instituta botaniki Akademii nauk USSR (for Bilyk).
7. Direktor Botanicheskogo sada Akademii nauk Moldavskoy SSR (for Geydeman).
8. Zaveduyushchiy kafedroy geomorfologii Kiyevskogo gosudarstvennogo universiteta (for Zamoriy).
9. Institut ekonomiki Akademii nauk USSR (for Kugukalo).
10. Zaveduyushchiy kafedroy fizicheskoy geografii Kiyevskogo gosudarstvennogo universiteta (for Marinich).
11. Ukrainskiy nauchno-issledovatel'skiy institut ekonomiki i organizatsii sel'skogo khozyaystva (for Mukomel').
12. Direktor Ukrainskogo nauchno-issledovatel'skogo gidrometeorologicheskogo instituta (for Prihot'ko).

(Continued on next card)

BONDARCHUK, V.G.---(continued) Card 3.

13. Direktor Ukrainskogo nauchno-issledovatel'skogo instituta ekonomiki i organizatsii sel'skogo khozyaystva, Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. V.I.Lenina (for Romanenko). 14. Direktor fabriki No.1 (for Tal'nova). 15. Chlen-korrespondent Akademii nauk USSR (for Pidoplichko).

(Ukraine--Maps)

(Moldavia--Maps)

TALOHRR, Zh. [Talobra, J.]; KIRBYEV, M.D., kand.tekhn.nauk [translator];
KHODAKOV, I.K., red.izd-vs; IL'INSKAYA, G.M., tekhn.red.

[Mechanics of rocks] Mekhanika gornykh porod. Moskva, Gos.
nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1960. 429 p.
Translation from the French. (MIRA 14:4)
(Rocks)